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SUBSTITUTE SPECIFICATION

LIGHT GRID FOR DETECTING OBJECTS IN A MONITORING REGION

Background of the Invention

[0001] The invention relates to a light grid for the detection of objects in a monitoring region having a transmitter unit comprising a plurality of light transmitters and a receiver unit comprising a plurality of light receivers in which respective pairs of light transmitters and light receivers associated with one another and bounding the monitoring region can be activated in succession in time in dependence on a synchronization signal transmitted between the transmitter unit and the receiver unit. The invention further relates to a method for the operation of such a light grid.

[0002] Light grids of this kind are used, for example, in highly automated production systems in which work pieces are automatically fed, machined and taken away again. These production systems are provided as a rule with fully automatic machining centers (e.g. robot devices) and transport devices. Since the feeding, machining and taking away regions at the same time represent possible danger regions, for example for operators, it is necessary with such systems to provide protection against non-permitted intrusion. Such protection can be achieved by means of light grids of the kind initially mentioned.

[0003] Since synchronous operation between the light transmitter and the light receiver is required for the operation of a light grid, it is usual in light grids in accordance with the state of the art to emit a synchronization signal coupled to a first monitoring signal, for example from the first light transmitter of the transmitter unit, in the direction of the first light receiver of the receiver unit in order to activate it. Subsequent to this